

International Civil Aviation Organization

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INFORMATION PAPER

**ASIA AND PACIFIC (APAC) FIFTEENTH MEETING
OF THE METEOROLOGICAL REQUIREMENTS
WORKING GROUP (MET/R WG/15)**

Bangkok, Thailand 07 April – 10 April 2026

Agenda Item 3: Collaboration between MET and ATM stakeholders
**BMKG DAILY AVIATION WEATHER BRIEFING TO INMC AIRNAV INDONESIA:
A PRACTICAL MODEL FOR MET-ATM COLLABORATION
IN A COMPLEX TROPICAL ENVIRONMENT**

(Presented by Indonesia)

SUMMARY

This paper presents Indonesia's practice of daily aviation weather briefings conducted by the Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG) to the Indonesia Network Management Centre (INMC) of AirNav Indonesia. Conducted every morning at 08:00 Local Time (01:00 UTC), the briefing covers meteorological products to support Air Traffic Flow Management (ATFM) across Indonesian Flight Information Regions. Operational since 2017 and enhanced through the INA-SIAM digital platform (launched 2021), this arrangement represents Indonesia's Collaborative Decision Making model for MET-ATM integration in a complex tropical environment.

1. INTRODUCTION

1.1 Indonesia operates two Flight Information Regions (FIRs): FIR Jakarta (WIIF) and FIR Ujung Pandang (WAAF). These FIRs encompass one of the world's most meteorologically challenging aviation environments, characterized by intense tropical convection, the Maritime Continent effect, Madden-Julian Oscillation (MJO) influence, and numerous active volcanoes. The high density of convective activity, particularly during the wet season from October to April, poses significant challenges to ATFM operations.

1.2 Indonesia's Air Navigation Service Provider (ANSP), AirNav Indonesia, established the Indonesia Network Management Centre (INMC) in Jakarta to coordinate ATFM operations, integrating inputs from Area Control Centres (ACCs) at Jakarta and Ujung Pandang, major airport operators, and airline operations centres.

1.3 Recognizing the critical role of meteorological information in ATFM operations, BMKG and AirNav Indonesia established a structured Collaborative Decision Making (CDM) arrangement for daily aviation weather briefings to INMC. Preparations for this integration began in 2017, aligned with GANP-ASBU (Global Air Navigation Plan – Aviation Safety Block Upgrades) targets for MET-ATM integration, and are consistent with the ICAO APAC Regional Guidance for Tailored Meteorological Information and Services to Support ATM Operations (Fourth Edition, 2023).

1.4 In 2021, BMKG further strengthened its digital MET service capabilities through the

launch of the Indonesia System of Interactive Aviation Meteorology (INA-SIAM), a web-based integrated platform consolidating observational data, NWP guidance, satellite imagery, radar products, OPMET information, and SIGWX tools in a single operational interface. INA-SIAM serves as the primary digital backbone supporting the daily INMC briefing content.

1.5 This paper describes the format, content, operational value, and enhancements introduced to the daily briefing since its inception, sharing Indonesia’s experience as a practical model for MET-ATM collaboration.

2. DISCUSSION

Overview of the Daily Briefing Arrangement

2.1 The BMKG daily aviation weather briefing to INMC is conducted every morning at 08:00 Local Time (01:00 UTC) on every operational day. The briefing is delivered via a dedicated video conference platform, connecting BMKG’s Directorate of Aviation Meteorology (Direktorat Meteorologi Penerbangan-Dirmetbang) in Jakarta with INMC AirNav Indonesia. This timing is strategically aligned to provide INMC with the most complete meteorological situational awareness prior to the morning peak departure period.

2.2 The briefing is conducted by a BMKG senior aviation meteorologist or duty forecaster from Dirmetbang, and attended by INMC duty managers, Operation Manager Airnav branch, and operators. The duration is typically 15-30 minutes, followed by a structured question-and-answer session to clarify specific weather concerns raised by the ATFM team.

2.3 A written briefing summary, supported by digital imagery and charts extracted from INA-SIAM, is distributed to INMC and relevant operational units within 15 minutes of the briefing’s conclusion and serves as the primary meteorological reference document for ATFM decision-making throughout the operational day.

2.4 In addition to the mandatory morning briefing, BMKG provides update notifications to INMC during periods of rapidly evolving significant weather, such as active Mesoscale Convective Systems (MCS), volcanic eruptions, or developing tropical disturbances, delivered via the video conference platform, dedicated messaging channels, or automated alerts from the INA-SIAM system.

Meteorological Products Presented

2.5 The briefing covers nine meteorological products selected on the basis of their demonstrated operational relevance to ATFM decision-making in Indonesian airspace, progressively enhanced since formalization through INMC feedback. Table 1 provides a summary of each product and its data source.

Table 1 — Meteorological Products Presented in the BMKG Daily Briefing to INMC AirNav Indonesia

Meteorological Product	Description and Operational Relevance	Data Source
Himawari-9 Satellite Imagery	IR, WV, VIS, and RGB composite imagery with animation loops. Identifies active Cumulonimbus (CB) clusters and MCS, volcanic ash plumes, developing tropical disturbances, and convective initiation zones affecting major airways.	JMA via APDC; BMKG satellite receiving station

Wind Streamline Analysis	Low-level (850 hPa) and upper-level (200 hPa) analysis. Highlights ITCZ position, monsoon trough, cross-equatorial flow, low-level jets, and convergence patterns preceding convective development over Java, Sumatra, and Kalimantan.	BMKG Directorate of Aviation Meteorology (Dirmetbang)
High-Level SIGWX Chart (FL250-FL630)	WAFS-based charts from WAFC London/Washington (SADIS/WIFS): CB, turbulence, icing, jet streams, tropopause heights.	WAFC London/Washington (SADIS/WIFS); annotated by BMKG MWO Jakarta
Medium-Level SIGWX Chart (SFC-FL250)	CB, TS, freezing level, and active volcanoes. Generated via INA-SIAM SIGWX Tools	BMKG MWO Jakarta (INA-SIAM SIGWX Tools)
TAF Awareness Map (Peta Kewaspadaan TAF)	Colour-coded geospatial map translating TAF content into aerodrome hazard status: Green (no significant weather), Yellow (moderate phenomena), Amber (TS, moderate CB), Red (severe conditions). Enables INMC to rapidly assess nationwide forecast hazards without decoding individual TAF alphanumeric codes.	BMKG Directorate of Aviation Meteorology (Dirmetbang)
METAR and TAF Summaries	Current observations and valid forecasts for major airports across both Indonesian FIRs: Soekarno-Hatta (WIII), Kualanamu (WIMM), , SMB Palembang (WIPP), Juanda (WARR), Sepinggan (WALL), Ngurah Rai (WADD), Hasanuddin (WAAA), Sentani (WAJJ), with significant weather. TAF coverage highlights CB, TS, and low visibility. Supplemented by hourly trend forecasts during peak periods.	BMKG Airport Meteorological Stations;
Active Volcano Report	Aviation Colour Code (ACC) status of aviation-significant volcanoes in both Indonesian FIRs per PVMBG (Badan Geologi). Active SIGMET VA (Volcanic Ash) and VONA issued within the preceding 12 hours are highlighted. Enables INMC to coordinate route modifications with ACCs and airlines.	BMKG/PVMBG (Badan Geologi); VAAC Darwin/Tokyo

Operational Value and Future Development Plans

2.6 The BMKG daily briefing to INMC has demonstrated tangible operational benefits since its formalization, including improved situational awareness for ATFM decision-makers prior to the peak morning departure period; more timely flow management measures during convective outbreaks and MCS events affecting the Jakarta and Ujung Pandang FIR; enhanced coordination on volcanic ash events, including more rapid notification during eruptions of volcanoes; and stronger working relationships.

2.7 BMKG and AirNav Indonesia are actively exploring further enhancements, including: development of a real-time digital meteorological dashboard aggregating INA-SIAM products for INMC and the two ACCs; extension of briefing coverage to include a second update at 17:00 LT (09:00 UTC) during active severe weather periods; exploration of probabilistic convective forecasts to support risk-based ATFM under high forecast uncertainty; integration of ADS-B flight deviation data as an

objective weather impact metric; and integration of SWIM (System Wide Information Management) data exchange protocols in alignment with the APAC Seamless ANS Plan and MET-SWIM roadmap. These developments reflect Indonesia's commitment to advancing MET-ATM integration maturity in accordance with GANP-ASBU objectives.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper.
